

APPENDIX D-17  
OVERVIEW OF WATER SERVICE SUPPLEMENTAL ANALYSIS  
OTAY RANCH RESORT VILLAGE 13 – ALTERNATIVE H

JANUARY 2020

PREPARED FOR:  
COUNTY OF SAN DIEGO  
PLANNING & DEVELOPMENT SERVICES  
5510 OVERLAND AVENUE  
SAN DIEGO, CA 92123

PREPARED BY:  
STEPHEN M. NIELSEN  
DEXTER WILSON ENGINEERING, INC.  
2234 FARADAY AVENUE  
CARLSBAD, CA 92008



# **DEXTER WILSON ENGINEERING, INC.**

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## **OVERVIEW OF WATER SERVICE FOR THE OTAY RANCH RESORT VILLAGE ALTERNATIVE H**

January 2020

**OVERVIEW OF WATER SERVICE  
FOR THE  
OTAY RANCH RESORT VILLAGE  
ALTERNATIVE H**

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**Prepared by:  
Dexter Wilson Engineering, Inc.  
2234 Faraday Avenue  
Carlsbad, CA 92008**

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## ABBREVIATIONS

ac -	acre
AF -	acre-foot
AMSL -	above mean sea level
cfcd -	community facilities district
cfs -	cubic feet per second
CRA -	Colorado River Aqueduct
GDP/SRP -	General Development Plan/Subregional Plan
gpd -	gallons per day
gpf -	gallons per flush
gpm -	gallons per minute
HOA -	homeowners association
IID -	Imperial Irrigation District
LAFCO -	Local Agency Formation Commission
mgd -	million gallons per day
MAF -	million acre-feet
MF -	multi-family land use designation
MWD -	Metropolitan Water District of Southern California
psi -	pounds per square inch
SAMP -	subarea master plan
SF -	single family land use designation
SDCWA -	San Diego County Water Authority
SWP -	State Water Project
UWMP -	Urban Water Management Plan

## USEFUL CONVERSIONS

1 acre-foot	=	325,829 gallons
1 mgd	=	1,000,000 gallons/day
1 cfs	=	448.8 gpm
1 cubic foot	=	7.48 gallons
1 mgd	=	694.4 gpm



## **CHAPTER 1**

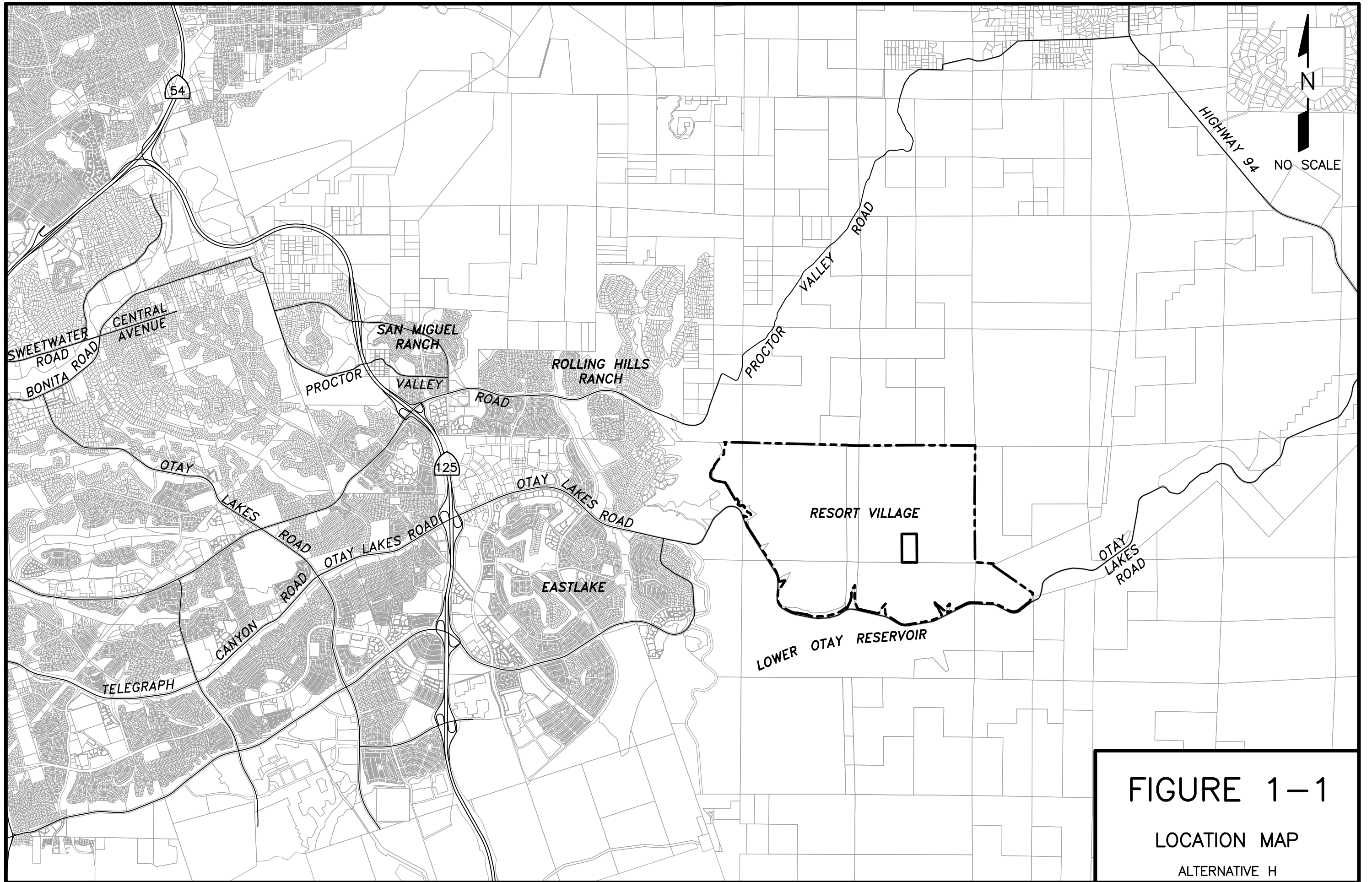
### **INTRODUCTION**

Subsequent to public review of the Otay Ranch Resort Village Draft EIR, an additional alternative to the Proposed Project has been identified – Alternative H. This report provides an overview of water service for the Alternative H project. This report will estimate water demands for Alternative H, outline regional water facilities to be constructed, and recommend onsite facilities to accommodate project demands. The report includes an overview of water supplies in the region and recommends water facilities specific to the needs of the Otay Ranch Resort Village project.

### **PHYSICAL SETTING**

The Otay Ranch Resort Village Alternative H project site is located in the County of San Diego, in the Proctor Valley Parcel of the Otay Subregional Plan area approximately one-quarter mile east of the City of Chula Vista. Access is provided via Telegraph Canyon Road which transitions into Otay Lakes Road and forms the southern boundary of the project site. Figure 1-1 presents a location map showing the overall project ownership.

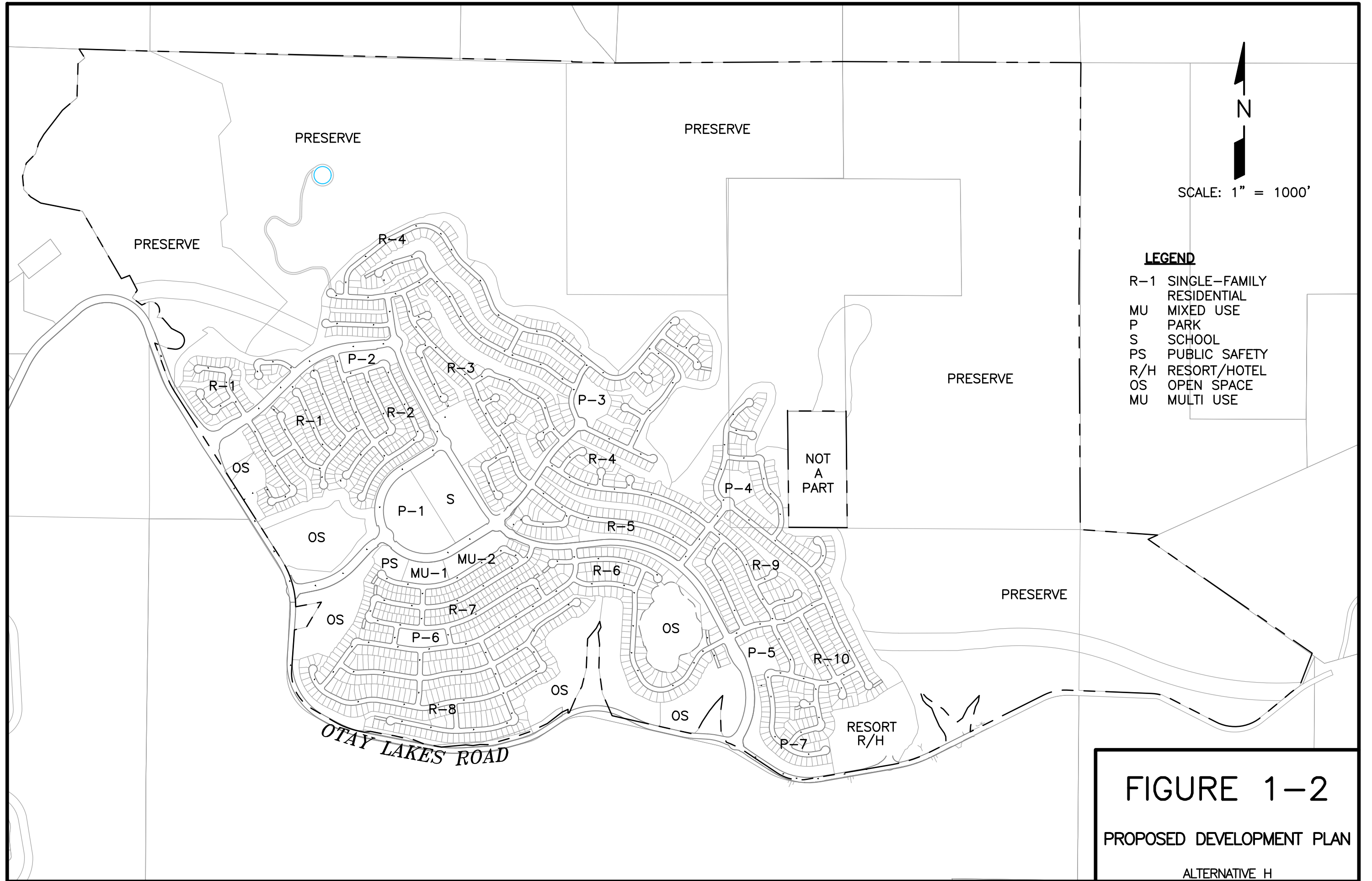
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## **ALTERNATIVE H DESCRIPTION AND SETTING**

Under Alternative H, the 1,869-acre project site would be developed in accordance with the approved preserve and development boundaries as shown in the MSCP County Subarea Plan. Figure 1-2 provides the proposed land use plan for Alternative H. Development of the Project Site would consist of 1,881 single-family homes and 57 multi-family homes for a total of 1,938 homes and a total residential development footprint of roughly 523.4 acres. Resort uses would encompass roughly 16.6 acres in the southeast portion of the Project Site and includes up to 200 rooms and 20,000 square feet of ancillary retail/commercial uses. This alternative also includes a 6.1 acre community homeowner facility, located in close proximity to the village core, which includes meeting space and fitness center, recreation courts, swimming pool and picnic areas, located in close proximity to the village core. A total of about 25.1 acres of public parks would be provided which includes a central park in the village core and five neighborhood parks within convenient walking distance from all homes. A 10 acre elementary school site is proposed adjacent to the central park. While no Public Safety Site was included within Village 13 in the Otay SRP, which located a fire station in Village 15, as with the Proposed Project this alternative would a 2.3 acre Public Safety Site. Otay Lakes Road would remain in its existing location and would be improved. Alternative H would convey 1,107 acres to the Otay Ranch Preserve. This alternative would also include 69.3 acres of conserved open space and 76.4 acres comprised primarily of homeowner association maintained manufactured slopes, fuel management zones, and water quality basins. Other land uses include 32.4 acres for internal circulation.

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## **WATER SERVICE**

The Alternative H project site is not currently within the boundaries of the Otay Water District (OWD), San Diego County Water Authority (SDCWA), or Metropolitan Water District of Southern California (MWD) for water service. Ultimately retail water service for the Alternative H Project Site is proposed to be provided by the OWD. For its potable water, the OWD relies solely on the SDCWA, a member of the MWD. A large portion of the water used in the SDCWA area is imported from MWD, which transports its water supply through the State Water Project (SWP) and the Colorado River Aqueduct (CRA). The SDCWA transports filtered water to near the Lower Otay Reservoir, just south of the property.

The Alternative H project site will require annexation to SDCWA, MWD, and OWD in order to obtain water service. Following approval of the Otay Ranch Resort Village Final Environmental Impact Report (EIR), the project applicants will apply to the Local Agency Formation Commission (LAFCO) for annexation. As a responsible agency, LAFCO will rely on the Otay Ranch Resort Village Final EIR to make annexation decisions.

At this time, OWD has included the Otay Ranch Resort Village project water demands in its 2015 Urban Water Management Plan (UWMP), and its current jurisdictional boundaries about the project site. The OWD has existing and planned facilities in the vicinity of the project and water service can be provided by expanding the existing system. In particular, water service will be provided by the 980 Pressure Zone (980 Zone) within the Central Area System of the OWD. The 980 Zone currently includes two pump stations which pump water into two existing 980 Zone reservoirs. This report will provide recommendations for improving and expanding the 980 Zone as needed to provide water service to the Otay Ranch Resort Village project.

## **PURPOSE OF STUDY**

This report provides an overview of water service for the proposed Otay Ranch Resort Village Alternative H project. This document is prepared as a supporting document for the project's Specific Plan and EIR. The developers of the project will be required to prepare, for review and approval by the OWD, a Subarea Master Plan (SAMP) concurrent with the processing of preliminary final engineering plans. The SAMP will provide more detailed information on project phasing, pump station and reservoir capacity requirements, recycled water system improvements and processing requirements, and computer modeling to justify recommended pipe sizes.

## **PROCESSING SUMMARY**

A summary of the major permits and process approvals that must be completed prior to the Otay Ranch Resort Village project being eligible for water service from OWD include:

- Otay Ranch Resort Village Final EIR, Specific Plan & Tentative Map(s) approvals through County of San Diego
- LAFCO application approval
- MWD, SDCWA, and OWD annexation approval
- OWD Improvement District annexation approval
- Approval of SAMP by OWD
- Final Engineering Improvement Plan approvals

## CHAPTER 2

### DESIGN CRITERIA AND PROJECTED WATER DEMANDS

This chapter presents the design criteria used to evaluate the water system for the Otay Ranch Resort Village Alternative H project. The design criteria are utilized for analysis of the existing water system as well as for design and sizing of proposed improvements and expansions to the existing system to accommodate demands in the study area. Unless otherwise noted, this criteria is taken from the OWD 2015 Water Facilities Master Plan Update.

#### Duty Factors and Peaking Factors

Table 2-1 presents the duty factors used in projecting the total average demand for the Otay Ranch Resort Village project. The required fire flows and durations are also listed. Actual fire flow requirements will be determined as site specific details such as building footprints and construction materials become available. The fire flow requirements listed in Table 2-1 are used by the OWD in master planning their overall water system. A fire flow of 2,500 gpm was used for single family residential development because the OWD Master Plan identifies the project area as being in a high severity zone.

TABLE 2-1 WATER DUTY FACTORS			
Land Use Designation	Unit Domestic Demand	Required Fire Flow (gpm)	Required Fire Flow Duration (hours)
Single Family – Low (1-3 DU/AC)	700 gpd/unit	2,500	2
Single Family – Medium (3-10 DU/AC)	435 gpd/unit	2,500	2
Multi-Family (>10 DU/AC)	200 gpd/unit	2,500	2
Commercial	1,785 gpd/ac	3,500	3
Public Safety	1,785 gpd/ac	3,500	4
School	1,785 gpd/ac	5,000	4
Park	1,900 gpd/ac	-----	-----



To convert average day potable water demands to maximum day demands, Figure 4-1-2 (Curve 2) from the Water Agency Standards was utilized. To convert average day potable water demands to peak hour demands, Figure 4-1-1 (Curve 2) from the Water Agency Standards was used.

### **System Pressures**

Generally, the potable water distribution system is designed to maintain static pressures between 65 psi and 200 psi. This criteria is used to initially divide a project between water service zones. The potable water distribution system has been designed to yield a minimum of 40 psi residual pressure at any location under peak hour demand flows, and a minimum residual pressure of 20 psi during maximum day demand plus fire flow conditions. Potable water mains are sized to maintain a maximum velocity of 10 feet per second under a maximum day plus fire flow scenario and a maximum velocity of 6 feet per second under peak hour flow conditions.

### **Pump Station**

Pump stations are sized for a firm capacity equivalent to the maximum day demand of the zone being served and all higher zones supplied by the pump station. Firm capacity is defined as the pumping capacity of the station when one pumping unit is out of service. To allow OWD flexibility to avoid pumping during peak electricity times, the pumps will be sized to allow pumping to occur over a 16 hour period.

### **Reservoirs**

Reservoir storage consists of operational storage, emergency storage, and fire flow storage. Operational storage is to be equivalent to 30 percent of the maximum daily demand for the area being served. Emergency storage is to be equivalent to 100 percent of the maximum daily demand for the area be served. Fire flow storage is to be based on the highest fire flow and duration required within the service area. Where multiple reservoirs are provided within a pressure zone, the fire flow storage requirement applies to the whole zone and not to each individual reservoir.



### **Projected Alternative H Water Demands**

The use of recycled water within watersheds which are tributary to surface water storage reservoirs that provide supply for domestic water uses must be approved by the owners of the reservoirs in order to protect water quality in these reservoirs. The applicants have met with and discussed the use of recycled water with the City of San Diego, the operator of the Lower and Upper Otay Reservoirs. The City of San Diego has requested that all projects not use recycled water because they are concerned about the runoff from the project entering the project and increasing nutrients and salinity. For this reason, the projected water use within the Resort Village Alternative H project has been estimated with the assumption that the use of recycled water within the project site will not be allowed. Table 2-2 provides the projected potable water demand for the Resort Village project. The total estimated average potable water use is 1.17 mgd. This demand will be supplied from OWD's 980 Zone as discussed in Chapter 4.

**TABLE 2-2  
ALTERNATIVE H PROJECTED POTABLE  
WATER DEMANDS**

<b>Neighborhood</b>	<b>Land Use Designation</b>	<b>Gross Acres</b>	<b>Quantity, Units</b>	<b>Water Duty Factor</b>	<b>Total Average Water Demand, GPD</b>
R-1	SF Residential	32.8	147	435 gpd/unit	63,945
R-2	SF Residential	37.6	213	435 gpd/unit	92,655
R-3	SF Residential	89.1	288	435 gpd/unit	125,280
R-4	SF Residential	115.3	284	700 gpd/unit	198,800
R-5	SF Residential	18.1	54	435 gpd/unit	23,490
R-6	SF Residential	39.8	145	435 gpd/unit	63,075
R-7	SF Residential	30.4	187	435 gpd/unit	81,345
R-8	SF Residential	66.0	249	435 gpd/unit	108,315
R-9	SF Residential	59.0	205	435 gpd/unit	89,175
R-10	SF Residential	28.5	109	435 gpd/unit	47,415
MU-R	Mixed Use - Res	3.9	57	200 gpd/unit	11,400
MU-C	Mixed Use-Com	2.7	---	1,785 gpd/ac	4,820
P-1	Park	9.8	---	1,900 gpd/ac	18,620
P-2	Park	2.3	---	1,900 gpd/ac	4,370
P-3	Park	2.2	---	1,900 gpd/ac	4,180

**TABLE 2-2  
ALTERNATIVE H PROJECTED POTABLE  
WATER DEMANDS**

<b>Neighborhood</b>	<b>Land Use Designation</b>	<b>Gross Acres</b>	<b>Quantity, Units</b>	<b>Water Duty Factor</b>	<b>Total Average Water Demand, GPD</b>
P-4	Park	1.4	---	1,900 gpd/ac	2,660
P-5	Park	2.2	---	1,900 gpd/ac	4,180
P-6	Park	2.4	---	1,900 gpd/ac	4,560
---	Public Safety	2.3	---	1,785 gpd/ac	4,106
S-1	School	10.1	---	1,785 gpd/ac	18,030
HOA	HOA	6.1	---	1,900 gpd/ac	11,590
Resort	Resort Units	14.6	200	200 gpd/unit	40,000
Resort	Resort Commercial	2.0	---	1,785 gpd/ac	3,570
Irrigated Areas		76.4	---	1,900 gpd/ac	145,160
Preserve	Open Space	1,107	---	0	0
Conserved Open Space	Open Space	69.3	---	0	0
Circulation	Open Space	32.4	---	0	0
<b>TOTAL</b>			<b>1,938<sup>1</sup></b>		<b>1,170,551</b>

<sup>1</sup> Total Residential Units.

## **CHAPTER 3**

### **WATER SUPPLY**

#### **Urban Water Management Planning Act**

In 1983, the Legislature enacted the Urban Water Management Planning Act (California Water Code sections 10610 through 10656), which requires every urban water supplier that provides water to 3,000 or more customers, or over 3,000 acre feet (af) of water annually, to make every effort to ensure the appropriate level of reliability in its water service to meet the needs of its customers during normal, dry, and multiple-dry years. The UWMP is required in order for a water supplier to be eligible for the Department of Water Resources (DWR) administered state grants, loans, and drought assistance. The UWMP provides information on water use, water resources, recycled water, water quality, reliability planning, demand management measures, best management practices, and water shortage contingency planning for a specified service area or territory.

#### **Senate Bills 610 and 221**

California Water Code Sections 10631, 10656, 10910, 10911, 10912, and 10915 are referred to as Senate Bill (SB) 610 and Government Code Sections 65867.5, 66455.3, and 66473.7 are referred to as SB 221. SB 610 and SB 221 amended state law, effective January 1, 2002, intending to improve the link between the information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the California Environmental Quality Act (CEQA) environmental documentation and approval process of certain proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are to be available for certain residential subdivision of property. SB 610 requires a city or county to evaluate whether water supplies will be sufficient to meet the projected water demand for certain "projects" that are otherwise subject to the requirement of CEQA. SB 610 provides its own definition of "project" in Water Code Section 10912.

## **Urban Water Management Plans**

The California Urban Water Management Planning Act requires that each urban water supplier providing water for municipal purposes, either to more than 3,000 customers, or more than 3,000 acre-feet of water annually, must prepare, adopt, and update a UWMP at least once every five years on or before December 31, in years ending in five and zero. This applies to MWD, SDCWA, and its member agencies, including OWD, that serve unincorporated San Diego County. The intent of an UWMP is to present information on water supply, water usage/demand, recycled water, and water use efficiency programs in a respective water district's service area. An UWMP also serves as a valuable resource for planners and policy makers over a 25 year time frame.

The UWMP process ensures that water supplies are being planned to meet future growth. UWMPs are developed to manage the uncertainties and variability of multiple supply sources and demands over the long term. Water agencies and districts update their demand and supply estimates based on the most recent San Diego Association of Governments (SANDAG) forecast approximately every five years to coincide with preparation of their UWMPs. The most current supply and demand projections are contained in the 2015 UWMPs of MWD, SDCWA, and OWD. SDCWA member districts rely on the UWMPs and Integrated Resources Plans (IRPs) of MWD and the Regional Water Facilities Master Plan of SDCWA for documentation of supplies available to meet projected demands.

Normal year, single-dry year, and multiple-dry year 2015 UWMP supply and demand assessments for MWD, SDCWA, and OWD are intended to describe the water supply reliability and vulnerability to seasonal or climatic conditions, to the extent practical. Normal water years are considered to be years that experience average rainfall for the respective district. Single-dry water years are considered one year drought events. Multiple-dry water years refer to a series of below average rainfall for particular areas (i.e., multiple drought year conditions). Projections for multiple-dry years are made in five year increments. In the 2015 UWMPs, MWD, SDCWA and all SDCWA member agencies, including OWD, that serve unincorporated San Diego County determined that adequate water supplies would be available to serve existing service areas under normal year, single-dry year, and multiple-dry year conditions through the year 2040.

## REGIONAL AND LOCAL WATER SUPPLY

### Metropolitan Water District

MWD supplies water to approximately 18.7 million people in a 5,200-square mile service area that includes portions of Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties. SDCWA is one of MWD's 26 member agencies. Supply and demand projection information for MWD is included in its 2015 Regional UWMP, adopted in May 2016. MWD's long-term strategy for a sustainable water supply is outlined in its Integrated Resources Plan (IRP), updated approximately every five years, and last updated in October 2015. MWD's IRP identifies a mix of resources (imported and local) that will provide 100 percent reliability for full-service demands through the attainment of regional targets set for conservation, local supplies, SWP supplies, Colorado River supplies, groundwater banking, and water transfers through the year 2040. SDCWA is the largest MWD agency in terms of delivery, purchasing approximately 25 percent of MWD's water. MWD gets its water from two sources. The first source is the Colorado River, which is connected to MWD's six-county service area through a 242-mile aqueduct. The aqueduct system is known as the Central Valley Project (CVP). The CVP is operated by the U.S. Bureau of Reclamation. The second source is water from northern California, which supplies water through a series of dams, aqueducts, pipelines, and other facilities known as the State Water Project (SWP). The SWP is operated by the California Department of Water Resources (DWR). From the Colorado River Agreement (CRA), MWD is apportioned 550,000 acre-feet of water per year (AFY) from the Colorado River. Despite this low apportionment, MWD was able to transport up to 1.2 million acre-feet (MAF) through the CRA in past years by relying on unused apportionments from Arizona, Nevada, and California agricultural agencies. However, because MWD's firm water supply from the CRA is only 550,000 AF that is the number planning agencies must rely on for development. To supplement this supply, MWD also has several existing programs and programs being developed in cooperation with other agencies.

From the SWP, MWD is contractually entitled to receive 1,911,000 AF of water; however, the level of SWP supply development, state and federal environmental regulations, and other factors have restricted and, in some cases, reduced actual amount of available SWP water. As a result of these and other limitations, MWD estimates that actual SWP supplies will be 701,000 AF in a dry year and 566,000 AF during multiple dry years, with Delta improvements.

In May 2016, the MWD adopted its 2015 Regional UWMP, which is an update to its prior 2010 Regional UWMP. In its 2015 UWMP, MWD evaluated water supply reliability, over a 20-year period, for average, single-dry, and multiple-dry years. To complete its most recent water supply reliability assessment, MWD developed estimates of total retail demands for the region, factoring in the impacts of conservation. After estimating demands, the water reliability analysis identified current supplies and supplies under development to meet projected demands. MWD's reliability assessment showed that MWD can maintain reliable water supplies to meet projected demands through the year 2040. MWD also identified buffer supplies, including other SWP groundwater storage and transfers, which could serve to supply additional water needs. Appendix A-3 to the MWD 2015 Regional UWMP contains detailed justifications for the sources of supply projected to meet water demands in the region, including Colorado River Aqueduct deliveries (Colorado River supplies) and California Aqueduct deliveries (SWP supplies).

#### **San Diego County Water Authority (SDCWA)**

The SDCWA service area covers approximately 951,000 acres and encompasses the western third of San Diego County. SDCWA has 24 member agencies, 15 of which provide water to unincorporated areas of San Diego County. The SDCWA is responsible for ensuring a safe and reliable water supply to support the region's economy and the quality of life for three million residents. Because of the County's semi-arid climate and limited local water supplies, SDCWA has historically imported between 70 and 95 percent of the water used in the San Diego region from MWD. In 2008, MWD provided 71 percent of the San Diego region's water supply. Most of this water is obtained from the Colorado River and the SWP through a system of pipes, aqueducts, and associated facilities. Through development of new local water supply sources such as the Carlsbad Desalination Plant, SDCWA has become increasingly less reliant on MWD water supplies in recent years.

Both MWD and SDCWA provide water supplies to their member agencies in order to meet projected water demand based upon regional population forecasts. The San Diego Association of Governments (SANDAG) is responsible for providing and updating land use planning and demographic forecasts for San Diego County. MWD and SDCWA update their water demand and supply estimates based on the most recent SANDAG forecasts approximately every five years to coincide with preparation of the their respective UWMPs.

In June 2016, the SDCWA adopted its 2015 UWMP, updating the previously adopted 2010 UWMP. Sections 4, 5, and 6 of SDCWA's 2015 UWMP contain documentation of SDCWA's existing and planned water supplies, including MWD supplies (imported Colorado River water and SWP water), SDCWA supplies, and local member agency supplies (surface water reservoirs, water recycling, groundwater, and groundwater recovery). SDCWA supplies include (1) IID water transfer supplies, (2) Supplies from conservation projects to line the All-American Canal and the Coachella Canal, located in Imperial and Coachella Valleys, and (3) development of a seawater desalination facility at the Encina Power Plant in Carlsbad, which is anticipated to produce 56,000 AFY of additional water supplies. (See Table 3-1 below.)

Additionally, since 1980, approximately 5 percent to 30 percent of the member agencies water has come from local sources, primarily from surface water reservoirs as indicated in Table 3-1. Recycled water and groundwater recovery projects are growing in importance in the region, and water conservation efforts have also made SDCWA member agencies less dependent on imported water.

<p align="center"><b>TABLE 3-1</b> <b>PROJECTED NORMAL YEAR WATER SUPPLIES (AFY)</b></p>					
<b>WATER SOURCE</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
<b>Water Authority Supplies</b>					
IID Water Transfer	190,000	200,000	200,000	200,000	200,000
Supply from MWD	136,002	181,840	207,413	224,863	248,565
Coachella Canal and All American Canal Lining Projects	80,200	80,200	80,200	80,200	80,200
Regional Seawater Desalination	50,000	50,000	50,000	50,000	50,000
<b>Member Agency Supplies</b>					
Surface Water	51,580	51,480	51,380	51,280	51,180
Water Recycling	40,459	43,674	45,758	46,118	46,858
Groundwater	17,940	19,130	20,170	20,170	20,170
Seawater Desalination	6,000	6,000	6,000	6,000	6,000
Brackish Groundwater Recovery	12,100	12,500	12,500	12,500	12,500
<b>TOTAL PROJECTED SUPPLIES</b>	<b>587,581</b>	<b>648,124</b>	<b>676,721</b>	<b>694,431</b>	<b>718,773</b>

*Source:* San Diego County Water Authority 2015 Urban Water Management Plan.

Section 9 of SDCWA's 2015 UWMP evaluates water supply reliability in average, single-dry, and multiple-dry years. Based on SDCWA's water supply reliability assessment, SDCWA concluded that water supplies would be sufficient through 2040. (See section below regarding Summary of Water Supplies and Demand, and Tables 3-2 through 3-4.)

Based on the imported and member agency local water sources discussed above, SDCWA estimates that it, along with member agency local sources will be able to supply 587,581 AF of water in 2020, as demonstrated in Table 3-1 above. Therefore, according to the MWD and SDCWA 2015 UWMPs, there is available water to meet all of the region's anticipated demand, including development of the Land Exchange Alternative, in average/normal and dry water years, as demonstrated in Table 3-2, Table 3-3 and Table 3-4, below. A Water Supply Assessment and Verification Report will need to be prepared for the Land Exchange Alternative by OWD to further detail the water supply assumptions and findings of OWD, SDCWA, and MWD. The reason that supplies exactly meet demands in Table 3-2 is that SDCWA only imports the amount of water necessary to meet demand. In Tables 3-3 and 3-4, years that show a deficit would require the use of water storage offsets and management actions to balance demand and supplies. These tables simply indicate that SDCWA has adequate supply to meet projected demands

<b>TABLE 3-2</b> <b>AVERAGE/NORMAL WATER YEAR SUPPLY AND DEMAND</b> <b>ASSESSMENT (AFY)</b>					
<b>MEMBER AGENCY SUPPLIES</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
Surface Water	51,580	51,480	51,380	51,280	51,180
Water Recycling	40,459	43,674	45,758	46,188	46,858
Groundwater	17,940	19,130	20,170	20,170	20,170
Brackish Groundwater Recovery	12,100	12,500	12,500	12,500	12,500
Seawater Desalination	6,000	6,000	6,000	6,000	6,000
Potable Reuse	3,300	3,300	3,300	3,300	3,300
<b>WATER AUTHORITY SUPPLIES</b>					
IID Water Transfer	190,000	200,000	200,000	200,000	200,000
Supply from MWD	136,002	181,840	207,413	224,863	248,565
Coachella Canal and All American Canal Lining Projects	80,200	80,200	80,200	80,200	80,200
Carlsbad Desalination Plant	50,000	50,000	50,000	50,000	50,000
<b>TOTAL PROJECTED SUPPLIES</b>	<b>587,581</b>	<b>648,124</b>	<b>676,721</b>	<b>694,431</b>	<b>718,773</b>
<b>TOTAL ESTIMATED DEMANDS<sup>1</sup></b>	<b>587,581</b>	<b>648,124</b>	<b>676,721</b>	<b>694,431</b>	<b>718,773</b>
<b>DIFFERENCE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>1</sup> With Conservation.

Source: San Diego County Water Authority 2015 Urban Water Management Plan.



**TABLE 3-3  
SINGLE DRY WATER YEAR SUPPLY AND DEMAND  
ASSESSMENT (AFY)**

<b>MEMBER AGENCY SUPPLIES</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
Surface Water	6,004	6,004	6,004	6,004	6,004
Water Recycling	40,459	43,674	45,758	46,188	46,858
Groundwater	15,281	15,281	15,281	15,281	15,281
Brackish Groundwater Recovery	12,100	12,500	12,500	12,500	12,500
Seawater Desalination	6,000	6,000	6,000	6,000	6,000
Potable Reuse	3,300	3,300	3,300	3,300	3,300
<b>WATER AUTHORITY SUPPLIES</b>					
IID Water Transfer	190,000	200,000	200,000	200,000	200,000
Supply from MWD	263,340	264,740	263,340	260,680	258,720
Coachella Canal and All American Canal Lining Projects	80,200	80,200	80,200	80,200	80,200
Carlsbad Desalination Plant	50,000	50,000	50,000	50,000	50,000
<b>TOTAL PROJECTED SUPPLIES</b>	<b>666,684</b>	<b>681,699</b>	<b>682,383</b>	<b>680,083</b>	<b>678,863</b>
<b>TOTAL ESTIMATED DEMANDS<sup>1</sup></b>	<b>629,198</b>	<b>694,147</b>	<b>725,006</b>	<b>743,990</b>	<b>770,765</b>
<b>DIFFERENCE<sup>2</sup></b>	<b>37,486</b>	<b>(12,448)</b>	<b>(42,623)</b>	<b>(63,907)</b>	<b>(91,902)</b>

<sup>1</sup> With Conservation.

<sup>2</sup> Potential shortages would be met from carryover storage and management actions.

Source: San Diego County Water Authority 2015 Urban Water Management Plan.

**TABLE 3-4  
MULTIPLE DRY WATER YEAR SUPPLY AND DEMAND  
ASSESSMENT (AFY)**

	<b>Near Term</b>			<b>Long Term</b>		
<b>Scenario</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2036</b>	<b>2037</b>	<b>2038</b>
<b>Multiple Dry Years</b>						
Demands	491,000	495,910	500,869	749,030	756,521	764,086
Supply	525,710	558,634	586,587	720,576	678,564	642,327
Potential Surplus or (Shortage) <sup>1</sup>	34,710	62,724	85,718	(28,454)	(77,957)	(121,759)

<sup>1</sup> Potential shortages would be offset through carryover storage and management actions.

Source: San Diego County Water Authority 2015 Urban Water Management Plan.

## Otay Water District

Once water is made available by SDCWA, it is transferred across San Diego County in two aqueducts containing five large-diameter pipelines. The First Aqueduct includes Pipelines 1 and 2, and the Second Aqueduct includes Pipelines 3, 4 and 5. The OWD maintains several connections to Pipeline 4, which delivers filtered water from the MWD filtration plant at Lake Skinner in Riverside County.

In San Diego County, OWD provides water services to southern El Cajon, La Mesa, Rancho San Diego, Jamul, Spring Valley, Bonita, eastern Chula Vista, and Otay Mesa along the international border with Mexico. OWD covers approximately 80,000 acres, and has approximately 47,000 connections. OWD has approximately 709 miles of pipelines, 24 pump stations, and 40 reservoirs with a total storage capacity of 226 million gallons (mg). OWD provides approximately 90 percent of its water service to residential land uses, and 10 percent to commercial and industrial land uses. Average annual consumption for OWD is approximately 30,000 af. OWD maintains five major systems to supply and deliver water, which include Hillsdale, Regulatory, La Presa, Central, and Otay Mesa.

In addition, OWD's Flow Control Facility No. 14 and the Jamacha Road Pipeline delivers filtered water from the R.M. Levy Water Treatment Plant which is owned and operated by the Helix Water District. However, this connection currently supplies water to the north portion of OWD only. Furthermore, OWD maintains a connection to the City of San Diego's water system in Telegraph Canyon Road and has an agreement which allows the District to receive water from the Lower Otay Filtration Plant.

In June 2016, OWD's Board of Directors adopted the updated OWD 2015 UWMP. Sections 2, 3, and 4 of the 2015 UWMP provides an overview of OWD's service area, its current water supply sources, supply reliability, water demands, measures to reduce water demand, and planned water supply projects and programs. Section 5 of the 2015 UWMP contains OWD's water service reliability assessment. This section states that the level of reliability is based on the documentation in the UWMP's prepared by MWD and SDCWA and that these agencies have determined they will be able to meet potable water demands through 2040, during normal and dry year conditions. According to the 2015 UWMP, OWD currently relies on MWD and SDCWA for its potable supply, and OWD has worked with these agencies to prepare consistent demand projections for OWD's service area.

### **Recent Drought Conditions**

Since the time the Executive Order B-29-15 (EO) was issued by Governor Brown on April 1, 2015, statewide water conditions have improved. Mandatory water use reductions that were in effect in 2015 and the early part of 2016 have been lifted and both the SDCWA and OWD are in a Level 1 drought condition which encourages voluntary cutbacks to water use.

The Resort Village project will comply with all SWRCB and OWD regulations, emergency, or otherwise that are applicable and in effect at the time of building permit issuance. The Resort Village project will implement interior water conservation project design features.

The SDCWA and the OWD will continue to have a viable supply of water. The San Diego County Water Authority has worked diligently over the past decades to develop a diverse water supply for the region. The recently completed Carlsbad desalination plant and water transfers from the Imperial Valley are a few examples of how SDCWA has increased and diversified supplies to the area. SDCWA and its member agencies are working on several other projects to increase local supplies.

### **POTABLE WATER**

The OWD will supply water to the Resort Village project from the 980 Zone of the District's Central Area System. The 980 Zone accesses water from the SDCWA aqueduct by Otay Flow Control Facilities Number 10 and 12, which fill 624 Pressure Zone reservoirs. Water is then distributed within the 624 Zone and pumped to the 711 and 980 Zone storage and distribution systems. The 980-2 Pump Station pumps water directly from the 624 Zone to the 980 Zone system. The 980-1 Pump Station remains as part of the Central Area System to serve as a backup resource to the 980-2 Pump Station in the event it is needed.

To receive potable water service, the Resort Village project will need to expand the existing 980 Zone. The following details the existing potable water facilities located in the vicinity of the project.

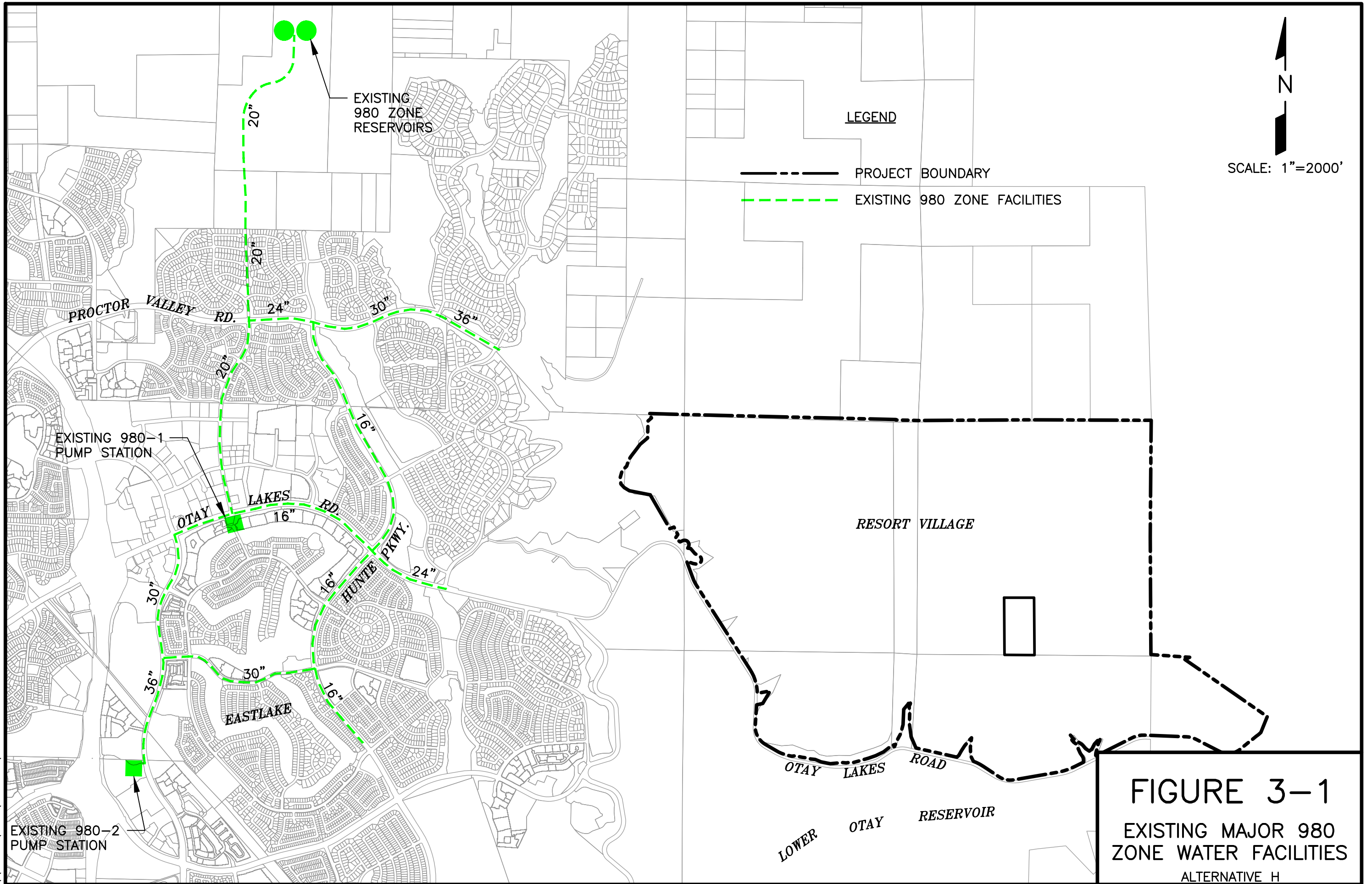
## **980 Zone**

There are two existing pump stations in the 980 Zone: the 980-1 Pump Station referred to as the Eastlake Pump Station, located on the south side of Otay Lakes Road at Lane Avenue and the 980-2 Pump Station. The 980-1 Zone Pump Station, which currently has two active pumps and one standby pump that are all rated for 4,000 gpm and maintain a firm station capacity of 8,000 gpm, pumps water from the 711 Zone system into the 980 Zone distribution system, and into two existing 980 Zone reservoirs located in the OWD Use Area. The 980-2 Pump Station pumps water from the 624 Zone to the 980 Zone and currently has three duty pumps, one standby pump, and two empty pump cans for future expansion. This station has a firm pumping capacity of 12,000 gpm.

Both existing reservoirs in the 980 Zone are located at the same site within the OWD Use Area, north of Rolling Hills Ranch. These reservoirs each have a capacity of 5.0 million gallons, for a total of 10.0 million gallons. The location of these reservoirs is provided on Figure 3-1.

The major 980 Zone pipelines in the vicinity of the Resort Village project are all located west of the project and include transmission lines in Hunte Parkway and Otay Lakes Road. The 24-inch transmission line in Otay Lakes Road has been extended to east of Hunte Parkway as shown on Figure 3-1.

\\ARTIC\DWG\605808\FIGURE-3-1\_ALTH.DWG 08-28-18 14:47:32 LAYOUT: 4-1



## CHAPTER 4

### RECOMMENDED WATER FACILITIES

The Resort Village project site will receive water service by expanding the existing 980 Zone water system. Figure 4-1 provides the recommended water facilities for the project. As discussed previously, a Subarea Master Plan will be prepared prior to approval of final engineering improvement plans for the Resort Village project to identify the sizing and timing of all onsite and offsite water facilities for the project.

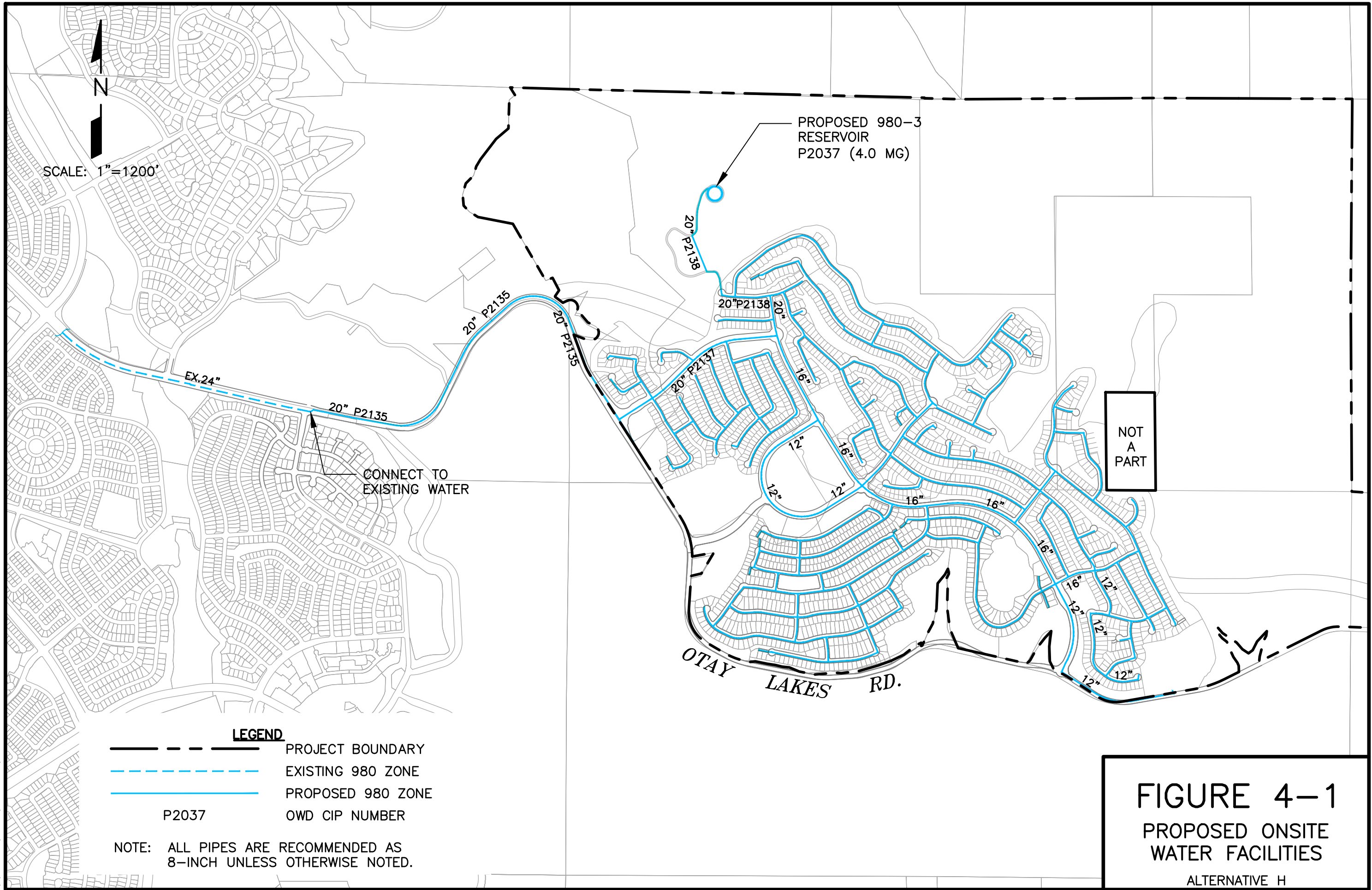
#### **980 Pressure Zone**

The Resort Village project would receive water service by expanding OWD's existing 980 Zone water system. The sizing and timing of all on-site and off-site water facilities for the Resort Village site would be identified in a SAMP to be reviewed and approved by OWD. The SAMP would be prepared for the project and submitted to OWD for approval prior to approval of final engineering plans.

Pursuant to OWD's Capital Improvement Program, improvements to the existing 980 Zone water system are necessary prior to or concurrent with development of the project. Such improvements would include construction of a new reservoir and extension of transmission lines. The 980-3 Reservoir, would be constructed within the project site and have a capacity of 4.0 million gallons. The existing 24-inch transmission line in Otay Lakes Road is proposed to be extended as a 20-inch transmission line from just east of Hunte Parkway to the projects main entry, ultimately connecting to the 980-3 Reservoir. Additional improvements associated with the proposed project would include construction of pipelines for homes and other structures to connect to 980 Zone facilities. All other facilities would be sized for the proposed project to meet OWD looping criteria, pressure and velocity requirements.

The development pads on the project will range in elevation from approximately 528 feet to 840 feet. With service provided from the 980 Zone, this will result in maximum static pressures ranging from 61 to 196 psi. Where pipeline pressures exceed the OWD's standards for the use of PVC piping, steel pipe will be required and used.





**980 Zone Reservoir.** The required 980 Zone Reservoir capacity for the Otay Ranch Resort Village is to be sized for 1.3 times the maximum daily demands of the project. Since this future reservoir will be connected to existing reservoirs in this zone, it is assumed that fire flow storage is already provided in the existing reservoirs. Table 4-1 summarizes the required 980 Zone storage for the project. OWD has master planned for this future reservoir to be sized for 4.0 MG.

<p style="text-align: center;"><b>TABLE 4-1</b>  <b>ALTERNATIVE H</b>  <b>980 ZONE RESERVOIR STORAGE REQUIREMENT</b></p>					
<b>Average Day Demand, mgd</b>	<b>Maximum Day Demand, mgd</b>	<b>Emergency Storage, mg</b>	<b>Operational Storage, mg</b>	<b>Fire Flow Storage, mg</b>	<b>Total Storage, mg</b>
1.17	2.94	2.94	0.88	0 <sup>1</sup>	3.82

<sup>1</sup> Fire flow storage is provided in existing 980 Zone reservoirs.